

# SEM Linewidth, Magnification and Sharpness Metrology

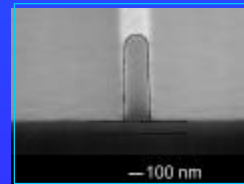
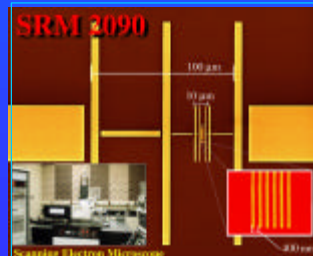
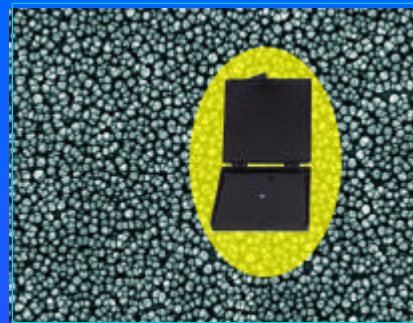
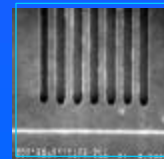
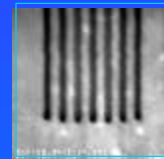
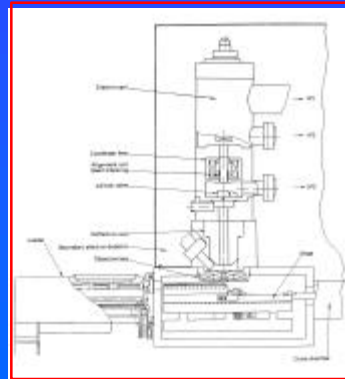
## Project Leader: Andras Vladar

### 2001 Deliverable

- Development of standard artifacts relevant to the microelectronics industry
- Development of accurate and precise SEM metrology
- RM 8091 Sharpness Reference Artifact
- Nano-tip electron gun experiments
- Advanced, shape sensitive measuring methods for the microelectronics industry

### Customers and Collaborators

- US microelectronics industry
- International SEMATECH
- Office of Microelectronics Programs
- Schlumberger ATE, SPECTEL, XEI, Hitachi, Applied Materials



### FY 2000 Accomplishments

#### SYSTEM DEVELOPMENT

- SEM Sentinel
  - Performance measuring system
- Nano-tip SEM
  - Underway, promising results
- Improvements
  - S-4700 upgrade;
  - E-beam lithography system
  - High-resolution PC imaging

#### REFERENCE ARTIFACTS

- RM 8091 Sharpness
  - Soon to be released
- RM 8090 Pitch
  - In production, new design

#### METHOD DEVELOPMENT

- Model-based metrology
  - Accurate, shape-sensitive
  - Production polySi wafer samples